Tinkering in 21st Century Community Learning Centers

Talking Points for Parents and Other Stakeholders

What is tinkering?

Tinkering involves hands-on, creative problem-solving activities. Children use scientific tools and phenomena as they develop and pursue their ideas and questions. Tinkering taps into all children's fundamental learning resource of play. Tinkering is joyful, collaborative, and challenging.

What kind of learning happens in tinkering?

Children are learning by doing.

Children are observing, questioning, designing, testing, and using data, evidence, and feedback to guide investigations of ideas and materials. These are key **scientific and engineering practices**.

Depending on the activity, children are learning about specific **scientific phenomena and concepts**, such as circuits, motors, balance, friction, kinetic energy, symmetry and other core scientific phenomena.

Tinkering is a social, collaborative, and problem-solving approach to learning science. According to the National Research Council (2012a), learning through these kinds of "**21st century skills**" promotes deeper learning.

In tinkering, children can develop **positive experiences and identities** about science and about themselves as capable science learners.

How does tinkering connect to school science?

Tinkering supports student's engagement in scientific and engineering practices. According to the National Research Council (2012b), **the best way to learn science or engineering is while engaging in scientific or engineering practices**.

Research shows that science learning identities (interest, confidence) are essential to academic success in science. **Tinkering can build a foundation for ongoing school science learning.**

National Resource Council (2012a) *Education For Life and Work.* Washington, DC: National Academies Press.
National Resource Council (2012b) *A Framework for K-12 Science Education.* Washington, DC: National Academies Press.